UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/736,438	12/15/2000	Osamu Itokawa	35.C14995	8825

5514　　7590　　11/01/2004	**EXAMINER**
FITZPATRICK CELLA HARPER & SCINTO	AKHAVANNIK, HUSSEIN
30 ROCKEFELLER PLAZA	
NEW YORK, NY 10112	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

<table>
<tr><td rowspan="2">Office Action Summary</td><td>Application No.
09/736,438</td><td>Applicant(s)
ITOKAWA, OSAMU</td></tr>
<tr><td>Examiner
Hussein Akhavannik</td><td>Art Unit
2621</td></tr>
</table>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-13</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-13</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>01 April 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed July 19, 2004 have been fully considered but they are not

persuasive.

The Applicant alleges that Sun et al do not teach or suggest setting a priority order of

code amount allocation for each of the plural objects and controlling an encoding parameter to

control a code amount of image data of the objects, in which priority is given to the object

having a predetermined priority order over the other objects in controlling the encoding

parameter on page 12, lines 5-9 of the remarks. The Examiner respectfully disagrees. Sun et al

teach in column 9, lines 40-63 that a code amount $T[i]$ is determined for each object in a frame

based on the object's size, motion, and variation. The code amount directly corresponds to

"setting a priority order of code amount allocation" because an object with a higher allocated

code amount $T[i]$ is given a higher priority (or significance) in the frame and therefore, allotted a

greater number of bits for encoding within the constant number of total bits allocated for each

frame. Thus, just as the priority number of the present invention assigns a significance to each

object and encodes objects having a higher priority at a higher bit rate, Sun et al assign each

object a code amount $T[i]$ and also encode objects having a higher code amount (or priority) at a

higher bit rate.

Sun et al also explain controlling an encoding parameter to control a code amount of

image data of the objects, in which priority is given to the object having a predetermined priority

order over the other objects in controlling the encoding parameter in column 6, line 56 to column

7, line 4. Sun et al explain that the bits available in a buffer (column 6, lines 28-35),

corresponding to the code amount of image data of the objects, are redistributed according to a

priority allocation amount determined based on the size of the object and the amount of activity

the object is experiencing. The determination of the priority among the objects is explained by

Sun et al in column 9, lines 40-64 as stated above.

Furthermore, the control means giving priority to the object having a predetermined

priority order over other objects in controlling the encoding parameter is recited as an intended

use of the image processing apparatus of claim 1 and image processor of claim 13. A recitation

of the intended use of the claimed invention must result in a structural difference between the

claimed invention and the prior art in order to patentably distinguish the claimed invention from

the prior art. If the prior art structure is capable of performing the intended use, then it meets the

claim. In a claim drawn to a process of making, the intended use must result in a manipulative

difference as compared to the prior art. See MPEP 2114, In re Casey, 152 USPQ 235 (CCPA

1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-5 and 7-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Sun et al

(U.S. Patent No. 5,969,764).

Referring to claim 1, which is representative of claims 11-13,

i.   Inputting means for inputting image data of plural objects is illustrated by Sun et al in figure 5 by the digital image source (10).

ii.   Encoding means for encoding, with an encoding parameter, the image data inputted by the input means on an object basis is explained by Sun et al in column 4, lines 43-51. Sun et al explain that the video signal encoder (12 of figure 5) is provided image information on a Video Object basis, corresponding to the general encoding method of MPEG-4. The encoding parameters are explained by Sun et al by the code amount assigned to each video object as explained in column 9, lines 40-63.

iii.   Setting means for setting a priority order of code amount allocation for each of the objects is explained by Sun et al in column 9, lines 40-63. The code amount $T[i]$ is determined for each object in a frame based on the object's size, motion, and variation. An object with a higher allocated code amount $T[i]$ is given a higher priority (or significance) in the frame and therefore, allotted a greater number of bits for encoding within the constant number of total bits allocated for each frame. Thus, just as the priority number of the present invention assigns a significance to each object and encodes objects having a higher priority at a higher bit rate, Sun et al assign each object a code amount $T[i]$ and also encode objects having a higher code amount (or priority) at a higher bit rate.

iv.   The control means for controlling the encoding parameter so as to control a code amount obtained by encoding the image data of the plural objects is explained by Sun et al in column 6, line 56 to column 7, line 4. Sun et al explain that bits available in a buffer (column 6, lines 28-35), corresponding to the code amount available for all of the objects

in a frame, are redistributed according to a priority allocation amount of the objects,

which is determined based on the size of the object and the amount of activity that the

object is experiencing.

v.   Wherein the control means gives priority to the object having a predetermined

priority order over other objects in controlling the encoding parameter is explained by

Sun et al in column 9, lines 40-63. The system of Sun et al gives priority to objects

assigned a higher allocated code amount T[i] to objects having a lower code amount, as

predetermined in step iii of this claim. Furthermore, it is inherent that setting a priority

order in any system gives priority to objects having a higher predetermined order than the

other objects.

Referring to claim 2, the control means changing the priority order at a predetermined

timing is explained by Sun et al in column 9, lines 40-42. Sun et al explain that the objects are

encoded at the same frame rate and therefore the priority order of each object would be

determined for every frame, corresponding to a predetermined timing.

Referring to claim 3, the predetermined timing being determined according to how many

times a code amount reduction processing for the objects is executed or according to code

amounts of the objects is explained by Sun et al in column 9, lines 40-42. Sun et al explain that

the priority bit allocation amount of each video object is determined in each frame. Therefore,

when each video object has been processed once, then the system of Sun et al will process the

next object. Therefore, the system of Sun et al changes the priority bit allocation amount of each

object according to how many times the processing has been performed for each object.

Referring to claim 4, when the code amount of an object set to a lowest priority becomes smaller than a predetermined lower limit value, the control means setting another object to the lowest priority is explained by Sun et al in column 6, line 64 to column 7, line 4. Sun et al explain if lower bound constraints on the bits used to encode an object are exceeded, then the system will invoke the pre-frame skip control. By skipping frames, the bit allocation to an object can be increased so that the lower bound constraints are not met.

Referring to claim 5, the encoding means breaking down the image data of the objects into pixel data and shape data and encoding the pixel data and shape data and the control means determining the priority order in accordance with a size of shape data of the objects is explained by Sun et al in the abstract and in column 9, lines 40-64. Sun et al explain in the abstract that the texture (corresponding to the pixel data), motion, and shape data of each object is encoded. The priority order of the bit allocation of the objects is explained to be a function of the motion, size, and mean absolute difference of each object. Therefore, objects with a greater size, motion, or mean absolute difference would be given a higher priority and thereby allocated a larger number of bits for encoding.

Referring to claim 7, the encoding means including quantization means for quantizing the image data of the objects and the encoding parameter indicates a quantizing parameter of the quantization means is explained by Sun et al in column 9, lines 21-27 and illustrated in figure 3. The quantization means (25) determines the quantization parameters according to the target distribution (32).

Referring to claim 8, a recording means for recording the data encoded by the encoding means into a recording medium is illustrated by Sun et al in figure 5 by the buffer (17).

Referring to claim 9, the inputting means comprising image pickup means for

photographing an object image and generating image data is illustrated by Sun et al in figure 5

by the digital image source (10).

Referring to claim 10, a video camera being provided with the image processing

apparatus is data is illustrated by Sun et al in figure 5 by the digital image source (10) connected

to the image processing apparatus (12). Sun et al explain in the abstract that the image

processing is performed on video data, which is captured by a video camera.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al in view

of Suzuki et al (U.S. Patent No. 6,415,057).

Referring to claim 6, the encoding means executing the encoding operation in accordance

with MPEG-4 and the setting means determining the priority order in accordance with the sizes

of the bounding boxes of the objects is explained by Sun et al in column 4, lines 59-65. Sun et al

explain that the encoding is performed as described according to the MPEG-4 standard.

However, Sun et al do not explicitly explain using bounding boxes to describe the size of the

objects. Suzuki et al illustrate using bounding boxes to explain the dimensions of an object in

figures 11A and 11B. By using bounding boxes to describe the dimensions of an object, the area

of the box can be determined by a simple multiplication of the two dimensions in order to

determine the bit allocation amount for the object in the system of Sun et al. Therefore, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to use a

bounding box to explain the size of an object so that the object size is described more efficiently

as it is a function of only two variables.

Conclusion

6.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

- Matsui (U.S. Patent No. 6,028,539) – To exhibit assigning a priorities to objects to

  control the bit rate of a frame as explained in column 11, line 62 to column 12, line 11.

- Kadono (U.S. Patent No. 6,188,796) – To exhibit assigning priority to objects in a frame

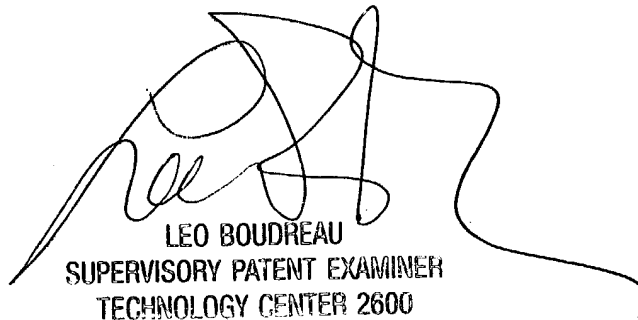 with bit rate is restricted as explained in column 1, lines 51-65.

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hussein Akhavannik whose telephone number is (703)306-4049.

The examiner can normally be reached on M-F 8:30-5:00.

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Leo H. Boudreau can be reached on (703)305-4706. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hussein Akhavannik
October 27, 2004

LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600